

As requested by the Examiner, Figure 5E has been amended to include a second reactant, and a substitute sheet of the informal figure is submitted herewith. (See enclosed Request For Approval To Amend Drawing Under 37 C.F.R. § 1.123).

Claims 1, 3-5, 8, 10-13, 15, 16, 18 and 21 have been amended, and new claims 27 and 28 added to more particularly point out and distinctly claim that which Applicants regard as the invention. The subject matter of the amended claim recitations is fully supported in the specification. In particular, support for the amended claim recitations of claims 1, 13, 18 and 21 is found in the specification, at page 17, lines 11-19, page 109, lines 19-34 and page 119, lines 7-20. Support for the amendment of claims 4 and 16 may be found at page 36, lines 12-29. Support for the amendment of claims 7 and 25 may be found at page 23, line 36. Support for the amendment of claim 8 may be found at page 10, lines 9-13. Support for the amendment of claims 10-12 may be found at page 20, lines 1-13. New claims 27 and 28 are supported by the specification at page 40, lines 19-25. No new matter has been introduced.

With respect to the restriction requirement, Applicants affirm the provisional election of the invention of Group I with traverse, i.e., Claims 1-21, 25 and 26. For reasons set forth below, Applicants request that the objections and rejections be withdrawn and the amended claims be allowed to issue.

**1. The Specification Is Compliant With the Requirements of 37 C.F.R. §§ 1.821 - 1.825**

In response to the Examiner's objection relating to the nucleic acid sequences that are present in Figures 5A through to 5F, Figure 10, and pages 85-86 of the specification, Applicants submit Sequence Listings in both paper and computer

readable form pursuant to 37 C.F.R. § 1.821(c) and (e), respectively; and a Declaration Under 37 C.F.R. § 1.821(f) that the paper and computer readable copies of the Sequence Listings are the same. The specification has been modified to incorporate the Sequence Listing and to insert the appropriate sequence identifiers. Applicants respectfully submit that the application is now compliant with the requirements of 37 C.F.R. §§ 1.821 - 1.825.

## **2. The Objection To The Drawing Is Obviated**

The Examiner objected to the drawings under 37 C.F.R. § 1.83(a) because Figure 5E does not show a second reactant without an attached bead as described in the specification. In response, Applicants submit herewith a Request For Approval To Amend Drawing Under 37 C.F.R. § 1.123 accompanied by an amended informal Figure 5E and a copy of the original informal Figure 5E. As suggested by the Examiner, Figure 5E, as amended, shows a second reactant in the serial ligation reaction, which is a gene cassette with a compatible restriction site at one end of the molecule. No new matter is introduced. The amendment to Figure 5E is supported by the specification at page 102, lines 20-28, wherein there is a description of the reaction that is depicted in Figure 5E. Applicants submit that the objection to the drawing is obviated.

## **3. The Rejections Under 35 U.S.C. § 112 are obviated**

Claims 1-21 and 25 are rejected under 35 U.S.C. § 112, second paragraph for indefiniteness. The Examiner contends that it is not clear whether each construct contains more than one cDNA or genomic fragment, and it is not clear how a construct

can contain only one fragment that is derived from a plurality of species. In response, Applicants have amended claim 1 to specify that each expression construct may contain one or multiple cDNA or genomic DNA fragments, and that the cDNA or genomic DNA fragments in the pool of expression constructs are derived from a plurality of species of donor organisms. Support for the amendment may be found in the specification, for example, at page 17, lines 11-19, page 109, lines 19-34 and page 119, lines 7-20. The rejection of claims 1-21, 25 and 26 is thus obviated.

Claims 3, 15, 25 and 26 are rejected under 35 U.S.C. § 112, second paragraph for indefiniteness. The Examiner contends that it is not clear whether the claims are drawn to expression constructs containing only preselected fragments or a combination of preselected and unselected fragments. In response, claims 3 and 15 have been amended to delete the recitation of "some of". The rejection of claims 3 and 15 and their dependent claims 25 and 26 is thus obviated.

Claims 13-21 and 26 are rejected under 35 U.S.C. § 112, second paragraph for indefiniteness. The Examiner contends that it is not clear whether the claims are drawn to expression constructs containing more than one cDNA or genomic DNA fragment, and it is not clear how a construct can contain only one fragment that is derived from a plurality of species. In response, Applicants have amended claims 13 and 18 to specify that each expression construct may contain one or multiple cDNA or genomic DNA fragments, and that the cDNA or genomic DNA fragments in the pool of expression constructs are derived from a plurality of species of donor organisms. Support for the amendment may be found in the specification, at page 17, lines 11-19, page 109, lines 19-34, and page 119, lines 7-20. The rejection of claim 21 and its dependent claims 22-35 is thus obviated.

Claims 1-21, 25 and 26 are rejected under 35 U.S.C. § 112, second paragraph, because of the recitation of the phrase "capable of". In response, Applicants have deleted the phrase from the claims, and substituted therefor the language, "that replicates", which affirmatively specifies the property of the claimed vectors. The rejection of claims 1-21, 25 and 26 is thus obviated.

Claim 8 is rejected under 35 U.S.C. § 112, second paragraph for indefiniteness. The Examiner contends that it is not clear whether the claimed cells are modified before introduction of the expression library or are modified as claimed due to the introduction of the expression library. In response, Applicants have amended claim 8 to indicate that the cells are modified prior to the introduction of the expression library into them. Support for the amendment may be found in the specification at page 10, lines 9-13. The rejection of claim 8 is thus obviated.

In view of the foregoing, Applicants respectfully submit that the rejections are obviated by the amendments, and request the Examiner's withdrawal of the rejection.

#### **4. The Double Patenting Rejection and the Section 103 Rejection are Obviated**

Claims 1-21, 25 and 26 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5, 7, 11, 13 and 15-22 of a commonly assigned copending application, serial no. 08/639,255 ("the '255 application"). Claims 1-21, 25 and 26 are also provisionally rejected under 35 U.S.C. § 103(a) as being obvious over the copending '255 application, which would constitute prior art under 35 U.S.C. § 102(e) if patented, in view of Frost et al. (Microbiol. Rev., 1994, 58:162-210; "Frost").

The Examiner contends claims 1-21, 25, 26 of the instant application are drawn to gene expression libraries comprising mobilizable shuttle vectors, while claims 1-5, 7, 11, 13 and 15-22 of the '255 application are drawn to gene expression libraries comprising shuttle vectors, but not mobilizable shuttle vectors. The Examiner also contends that it would have been obvious to a person of ordinary skill in the art to modify the libraries of copending '255 application by use of mobilizable shuttle vectors in view of Frost. Furthermore, the Examiner states that the issue of priority of the two copending applications under 35 U.S.C. § 102(g) and possibly § 102(f) must be resolved, and that the assignee is required to state which entity is the prior inventor of the conflicting subject matter.

Applicants respectfully invite the Examiner's attention to MPEP 804, and Chart I-B "Conflicting Claims Between Two Applications" at page 800-11 (MPEP, 6th edition, Rev. 2, July 1996), wherein it is stated that a provisional obviousness double patenting rejection and a provisional rejection under 102(e)/103 are required when the Examiner becomes aware of two different inventions having different inventive entities, but the two different inventions were commonly owned at the time of Applicant's invention. Applicants respectfully submit that this requirement governs the present situation with respect to the instant application and the '255 application, and set forth the reasoning below.

First, the conflicting claims as identified by the Examiner cover two different inventions. Applicants respectfully point out that the claims in the '255 application, unlike those of the instant application, are not drawn to gene expression libraries comprising mobilizable shuttle vectors. The subject matter claimed in the instant application is directed to gene expression libraries wherein an expression vector used in making the combinatorial libraries contains sequences that permit maintenance and

replication in one or more host organisms, and sequences that may be used to mobilize the library to various host organisms via conjugative transfer. A disclosure of this subject matter is found in the specification of the instant application at page 40, lines 7-27. A similar description is found in the '255 application at page 36, line 24 to page 37 line 2 thereof, but no claims are drawn to such subject matter.

Second, the instant application and the '255 application are both assigned to ChromaXome Corporation, and are commonly owned or were subject to an obligation of assignment at the time the invention was made. The inventors of the co-pending '255 application are Katie A. Thompson, Todd C. Peterson, Lyndon M. Foster, Paul Brian and Nicole M. Nasby.<sup>1</sup> A Petition to Correct Inventorship Pursuant to 37 C.F.R. § 1.48(a) and supporting documents have been submitted to add Paul Brian and Nicole Nasby as coinventors. Assignment of the '255 application by coinventors, Katie A. Thompson, Todd C. Peterson and Lyndon M. Foster has been recorded in the United States Patent and Trademark Office on June 4, 1996 on Reel 8108 at Frame 0778. An Assignment of the '255 application by coinventors, Paul Brian and Nicole M. Nasby was executed on May 13, 1997, and was submitted for recordation in the Patent and Trademark Office. Copies of a Declaration and Power of Attorney executed by Paul Brian and Nicole M. Nasby for the '255 application, and an Assignment of the '255 application to ChromaXome Corporation executed by Paul Brian and Nicole M. Nasby are attached herewith as Exhibit 1. At the time of the invention was made, all the inventors of the '255 application were subject to an obligation to assign the invention to ChromaXome Corporation as employees of the corporation.

---

<sup>1</sup> Although not originally identified as inventors, Paul Brian and Nicole Nasby's inventive contributions were recently realized and they are being added as coinventors of the subject matter claimed in the '255 application under 37 CFR § 1.48 via a petition to correct inventorship.

In response to the non-statutory obviousness-type double patenting rejection, Applicants submit herewith a Terminal Disclaimer Under 37 C.F.R. § 1.321(b), accompanied by the appropriate fee, which was executed by Bernard D. King, President of ChromaXome Corporation, assignee of the instant application. Applicants respectfully request that the executed Terminal Disclaimer be entered and made of record in the instant application, and that the rejection of the instant claims 1-21, 25 and 26 for double patenting be withdrawn.

As to the issue of priority under 35 U.S.C. §§ 102(f) and (g) and the provisional rejection based on 102(e)/103, Applicants respectfully submit that the subject matter in question in the commonly owned applications is not invented "by another". The inventive subject matter in question, which was disclosed but not claimed in the '255 application, is attributable to the coinventors, Todd C. Peterson, Lyndon M. Foster and Paul Brian only, *i.e.*, the coinventors of the present application. The other coinventors of the '255 application, Katie A. Thompson and Nicole M. Nasby did not contribute to the invention of the relevant subject matter. Coinventors Todd C. Peterson, Lyndon M. Foster and Paul Brian of the instant application submit herewith a Declaration under 37 C.F.R. § 1.132 ("the Rule 132 Declaration"), unequivocally stating that the subject matter disclosed but not claimed in the '255 application was invented by them. Neither Katie A. Thompson nor Nicole M. Nasby contributed to the invention (Exhibit 2).

As explained in the Rule 132 Declaration, Todd C. Peterson, Lyndon M. Foster and Paul Brian state that they, and they alone, are the inventors of combinatorial gene expression libraries in which the expression construct specifically comprises a shuttle vector capable of maintaining and replicating in different species of host cells, and transferring by conjugation from one host organism to another, as claimed in the instant application. Applicants further submit that, although the inventive entity in the instant

application is different from that of the '255 application, the subject matter in question, *i.e.*, mobilizable combinatorial gene expression libraries, was not invented by another, but the same inventive entity identified in the instant application. Accordingly, there is no issue of priority under sections 102(f) and 102(g), and the '255 application which was filed earlier than the instant application, if patented, is not prior art against the instant application under 102(e)/103. See In re Mathews, 161 U.S.P.Q. 276, (CCPA 1969), and In re DeBaun, 214 U.S.P.Q. 933, 936 (CCPA 1982)(an uncontradicted unequivocal statement from the applicant regarding the subject matter disclosed in an article or patent will be accepted as establishing inventorship). See also MPEP 2136.05 and 716.10.

The Examiner also combines the disclosure of the '255 application with Frost. Frost reports on the structure and function of the genes and gene products present in the transfer region of the E. coli F sex factor plasmid, but does not hint or suggest any combinatorial gene expression libraries, or any use of the genes of the transfer region in shuttle vectors for construction of gene expression libraries. In view of the foregoing discussion, the rejection cannot be maintained, as the '255 application is not prior art against the instant invention. Frost by itself does not suggest the claimed invention as required 35 U.S.C. § 103, which mandates a determination of the scope and the content of the prior art, the differences between the invention and the prior art, the level of the ordinary skill in the art, and whether the differences are such that the claimed subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made. Graham v. Deere, 383 U.S. 1 (1966). Applicants submit that Frost cannot render the claimed invention obvious.

In view of the foregoing remarks, the Terminal Disclaimer and the Rule 132 Declaration, Applicants submit that the rejection of the claims based on the doctrine



of obviousness-type double patenting and 35 U.S.C. §§ 102(e)/103, and the requirement to show priority are obviated.

### CONCLUSION

Applicants respectfully request that the foregoing amendments and remarks, which place the claims in condition for allowance, be entered and made of record in the file history of the application. Withdrawal of the Examiner's rejections and allowance of the application are earnestly requested. If any issues remain in connection herewith, the Examiner is respectfully invited to telephone the undersigned to discuss the same.

Respectfully submitted,

*by [Signature] REG. NO. 31,956*  
*Laura A. Coruzzi*  
\_\_\_\_\_  
Laura A. Coruzzi 30,742  
(Reg. No.)

Date: August 25, 1997

PENNIE & EDMONDS LLP  
1155 Avenue of the Americas  
New York, New York 10036-2711

(212) 790-9090